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January 18, 2018

Mr. Ed Infinger
Solvay, Inc., Charleston Plant
2151 King Street Extension
Charleston, SC 29405

RECEIVED

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SC DHEC - Bureau of
Land & Waste Management

RE: PERMITTED FACILITY INSPECTION
SOLVAY INC.
EPA ID#: SCD003358389
CHARLESTON COUNTY

Dear Mr. Infinger:

On December 7, 2017 representatives of the South Carolina Department of Health and Environmental Control (SCDHEC or Department) and the United States Environmental Protection Agency (USEPA) inspected the facility referenced above. The purpose of this inspection was to determine compliance with the requirements as specified in the South Carolina Hazardous Waste Management Regulations (SCHWMR or otherwise regulations), S.C. Code Ann. Regs. 61-79, as amended, promulgated pursuant to the South Carolina Hazardous Waste Management Act, S.C. Code Ann. Section 44-56-30, as amended.

Javier Garcia	US Environmental Protection Agency
Ed Infinger	Solvay Inc.
Terry Yarborough	SCDHEC, Bureau of Environmental Affairs, Charleston

Solvay Inc., formerly known as Rhodia is a world leader in the development and production of specialty chemicals for the automotive, electronics, flavors and fragrances, health, personal and home care and consumer and industrial goods. The Charleston Plant produces a variety of specialty chemicals in eight manufacturing units. Phosphoric acid and phosphorus halides are manufactured by continuous processes in three dedicated units. Five other units are collectively capable of manufacturing over 300 distinct chemical products. Organic products made in these units fall into the broad classes of phosphites, phosphates, alkyl chlorides, and phosphonates. Products are used as flame-retardants, lubricant additives, oxidation inhibitors, water treatment chemicals, and as intermediates for pharmaceuticals and chemicals manufactured by the plant's customers. Hazardous wastes are generated from solvent and condensate recovery, reactor cleanouts, sludge accumulation, product purification, and from clean-up operations.

Solvay is registered with the Department as a Large Quantity Generator (LQG) of hazardous waste, a Small Quantity Handler of Universal Waste and a Permitted Treatment, Storage, and Disposal Facility (TSDF). The facility's permitted activity is for treatment and storage of hazardous waste greater than 90 days.

The SCDHEC and USEPA representatives arrived at the facility at 9:30 am and after brief introductions began the physical inspection of the facility.

Site Tour

The following areas of the facility were physically inspected:

- Inorganic Waste Storage Area
- Organic Waste Storage Area
- Hazardous Waste Storage Tanks
- Non-hazardous Waste Storage Area
- High Temperature Unit (HTP)- Satellite Accumulation Area
- Organic Specialties Unit (OSU)
- Maintenance Shop
- Universal Waste Storage Area

Inorganic Waste Storage Areas

The inspection team observed two 275 gallon totes and fourteen 55-gallon drums containing waste stream D180 which is fatty acid chlorides. No spills or leaks were observed and the secondary containment appeared to be impervious free of cracks.

High Temperature Unit - SAA

One empty 275-gallon tote was observed at HTP #1. BN1 waste tanks to #646 and #647 were labeled and closed.

Hazardous Waste Storage Tanks

Tank #646, East Organic Tank and tank #647 was in operation at the time of inspection. Not all flanges and valves had ID tags.

Organic Waste Storage Area

One 55-gallon drum, three 275-gallon totes were being stored in the waste storage area. All were labeled, closed and free of leaks. The containment area had been adequately maintained.

HTP SAA

The High Temperature Unit had 2 containers of hazardous waste. There was one 55-gallon poly drum and a 250-gallon tote that is emptied when it reaches the 55-gallon mark.

Organic Specialties Unit (OSU)-SAA

One 55-gallon drum was stored at the #1 unit along with a tote that is moved and emptied into tank #646 when it reaches 55 gallons. Another tote that goes to tank #646 is used in line flushing and is dated and moved when it reaches 55 gallons. OSU Unit #2 had a 500-gallon tote containing a methanol blend (D001) which is a batch operation waste that will go to tank #647.

Maintenance Shop

The shop has blast media that is being stored pending analysis. There is one aerosol can crusher that was closed and labeled. Universal waste – batteries were being stored in three 5-gallon containers closed and labeled.

Pipe Bending Building

Universal waste – batteries are stored in this area in two large bins. No waste was observed during the inspection.

Safety Trailer

Universal waste – lamps were being stored in five boxes all properly labeled and closed.

Records Review

The following records and paperwork were reviewed during the inspection:

- Hazardous Waste Manifests: 2016-2017 – No issues
- Hazardous Waste Contingency Plan Revisions May, 2016 – No issues
- Container Storage Areas – No Issues
- Personnel Training Records: 2017 – No issues
- Hazardous Waste Permit – No issues
- Hazardous Waste Tank Inspection Reports
- Hazardous Waste Storage Area Inspection Reports – No Issues

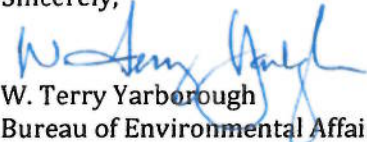
Area of Concern

Hazardous waste tanks 646 and 647 did not have all flanges and valves tagged with an ID number. The LDAR was requested for review of the tank inspections. Solvay's response dated January 5, 2018 states that Subpart BB of 40 CFR 264/265 does not apply. See the attached letter from Solvay.

The lines being flushed at the OSU should be monitored every 300 hours of operations with documentation to demonstrate that is being done. A response for the operation of this equipment was received on January 5, 2018.

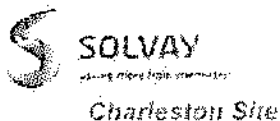
The inspection team conducted an exit briefing with company officials at the completion of the inspection. At the time of the inspection, no deficiencies were noted.

Sincerely,



W. Terry Yarborough
Bureau of Environmental Affairs Charleston

cc: Gerald Shealy, SCDHEC, Bureau of Land and Waste Management
Javier Garcia, US Environmental Protection Agency



January 5, 2018

VIA E-MAIL & FEDEX

Mr. Javier E. Garcia
RCRA Enforcement & Compliance Branch
EPA Region 4
61 Forsyth Street S.W.
Atlanta, Georgia 30303

Re: U.S. EPA RCRA Inspection of the Solvay USA Inc. Charleston Facility on December 8, 2017

Dear Mr. Garcia:

The purpose of this letter is to respond to the questions you raised in an email to Loyd Infinger dated December 12, 2017. You indicated that the questions address areas where you require additional information in order to complete the inspection you conducted at the Solvay USA Inc. (Solvay) Charleston, SC site on December 8, 2017. I will restate your questions below followed by Solvay's responses.

1. *Provide the following Financial Assurance Information: (a) JP Morgan Letter of Credit and all Amendments; (b) US Bank standby trust agreement and all amendments and updates to Schedules A&B; (c) Copy of most recent certificate for third-party liability coverage; and (d) Copies of approved closure and corrective action plans and cost estimates.*

Response: Copies of the requested Financial Assurance information is attached to this letter.

2. *Describe Solvay's leak detection and repair (LDAR) program for the equipment in the process areas that is used to transfer organic hazardous wastes from the process area to tote containers, as required in subpart bb of 40 cfr 264/265.*

Response: Please see answer to question 4 below explaining that Subpart BB does not apply.

3. *Please provide copy of the LDAR monitoring records described above from January 1, 2015 to present.*

Response: Please see answer to question 4 below explaining that Subpart BB does not apply.

4. *If Solvay has determined that the equipment in the process areas that is in contact with organic hazardous wastes is not subject to Subpart BB of 40 CFR 264/265, please submit*

copy of the documentation used to make the determination.

Response: The equipment that is used to convey hazardous waste liquids from the process areas into totes is not subject to the 40 CFR Parts 264 and 265 Subpart BB requirements because the conveyance is into satellite accumulation containers to which Subpart BB does not apply.

At the Charleston plant, eight totes are used at seven different process areas to receive residual hazardous waste liquids from process reactors or other process equipment at the end of a batch process, during a product campaign, from cleaning out the equipment, or from sample purge material. These liquids are D001, D002 and/or D028 hazardous wastes with greater than 10% organics. The totes have a maximum working capacity of 275 gallons, and are generally used instead of 55 gallon drums because they can be more easily and securely moved with a forklift than drums. Each tote has a 55 gallon level indicator, and at least once in each shift, an operator checks to see if more than 55 gallons of liquids are in each tote. Whenever more than 55 gallons are accumulated in any tote, the tote is marked with the accumulation date and always within three days (and usually within two days) the tote is moved to the location of the permitted hazardous waste tanks F-646 and F-647 into which the liquids are pumped for storage and subsequent off-site disposal.

Each of the eight totes is identified below, and their location is shown on the enclosed figure.

Totes #1 & #2 – OSU Unit

Satellite Accumulation Area Totes #1 & #2 are hard piped from the Organic Specialty Unit (OSU) process unit. Vent lines from these totes are to the scrubber. These totes receive waste methanol from the process, which is profiled as Waste Stream #201 – Waste Alcohols (D001), and is typically transferred into hazardous waste tank #647. Two totes are used in this process area so that when one exceeds 55 gallons, it can be moved to the hazardous waste tank, while the other tote remains to receive residual liquid.

Tote #3 – OSU Unit

Satellite Accumulation Area Tote #3 is also hard piped from other parts of the OSU process unit, which generate different wastes. Vent lines from this tote are to the scrubber. This tote receives waste organic liquids from the process, which are profiled as Waste Stream #200 – Waste Organic Liquids (D001, D002, D028), and are typically transferred into hazardous waste tank #646.

Tote #4 – OSU Unit

Satellite Accumulation Area Tote #4 is not hard piped to the unit and is kept closed unless being loaded with materials. There are no vent lines. This tote receives waste organic liquids from line flushes or small sample containers, which are profiled as Waste Stream #200 – Waste Organic Liquids (D001, D002, D028). The material is typically transferred into hazardous waste tank #646.

Tote #5 – HTP Unit



SOLVAY

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Charleston Site

Satellite Accumulation Area Tote #5 is not hard piped to the unit and is kept closed unless being loaded with a lance hose from the High Temperature Phosphites (HTP) process unit. There are no vent lines. This tote receives waste organic liquids from the process, which are profiled as Waste Stream #200 – Waste Organic Liquids (D001, D002, D028). The material is typically transferred into hazardous waste tank #646.

Tote #6 – GPU Unit

Satellite Accumulation Area Tote #6 is hard piped from the General Production Unit (GPU) process unit. Vent lines from this tote are to the scrubber. This tote receives waste organic liquids from the process, which are profiled as Waste Stream #200 – Waste Organic Liquids (D001, D002, D028). The material is typically transferred into hazardous waste tank #646.

Tote #7 – Tank Farm

Satellite Accumulation Area Tote #7 is not hard piped to the unit and is kept closed unless being loaded with line flush waste from the raw materials tank farm equipment. There are no vent lines. This tote receives waste organic liquids, which are profiled as Waste Stream #200 – Waste Organic Liquids (D001, D002, D028). The material is typically transferred into hazardous waste tank #646.

Tote #8 – Warehouse

Satellite Accumulation Area Tote #8 is not hard piped to the unit and is kept closed unless being loaded with line flush waste from the finished products warehouse loading equipment. There are no vent lines. This tote receives waste organic liquids, which are profiled as Waste Stream #200 – Waste Organic Liquids (D001, D002, D028). The material is typically transferred into hazardous waste tank #646.

South Carolina's hazardous waste rule at R. 61–79, 262. (c)(1), which is the same as the federal rule at 40 CFR §262.34(c)(1)¹, provides:

"A generator may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in Sections 261.31 or 261.33(c) in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with Paragraph (a) or (d) of this Section provided he:

- (i) Complies with Sections 265.171, 265.172, and 265.173(a) of this Chapter; and*

¹ EPA revised and reorganized its satellite accumulation rules, but South Carolina has not yet adopted the new rules.

- (ii) Marks his containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers.

(2) A generator who accumulates...hazardous waste...in excess of the amounts listed in Paragraph (c)(1)...must...comply within three days with Paragraph (a) of this Section or other applicable provisions of this Chapter. During the three day period, the generator must continue to comply with Paragraphs (c)(1)(i) and (ii) of this Section. The generator must mark the container holding the excess accumulation of hazardous waste with the date the excess amount began accumulating.

Thus, the totes that receive the hazardous waste would qualify as satellite accumulation containers if they:

- Are located "at or near any point of generation where waste initially accumulates";

The totes that are used to receive the hazardous waste liquids are located within the process areas from which the wastes are generated. See 40 CFR § 261.4(c).

- That location "is under the control of the operator of the process generating the waste";

Both Solvay, which is the 40 CFR § 260.10 "operator" of the process that generates the waste, as well as several of the individual employees who are involved in the manufacturing process, are also involved in the handling and conveyance of the hazardous waste from the process equipment to the totes that are used to collect the liquids.

- Containers must meet the requirements of 40 CFR §265.171, which requires that the containers be in good condition;

The totes that are used to receive the liquids are always in good condition. If any becomes damaged, it is promptly replaced.

- The containers must meet the requirements of 40 CFR §265.172, which requires that all waste placed into the containers be compatible;

The waste liquids that are placed into the totes are ignitable, corrosive or 1,2-dichloroethane organic wastes that are entirely compatible.

- The containers must meet the requirements of 40 CFR §265.173(a), which requires that the containers be closed during storage except when it is necessary to add or remove waste;

The totes are always closed, except when adding or removing hazardous waste liquids. Liquid is added or removed using hard pipes, flexible hoses, buckets, small sample containers, or a lance/wand that is inserted into the tote once the cap is removed. Immediately after adding or removing the waste, the cap is replaced and tightened.

- *The containers must be marked with the words "Hazardous Waste" or other words that identify the contents of the containers;*

The totes are marked with the words "Hazardous Waste".

- *All excess hazardous waste above 55 gallons must be removed from the satellite accumulation area within three days and either sent to a permitted or less-than 90-day storage unit, or sent off-site;*

Once the volume of liquid exceeds 55 gallons in total for any single tote, the hazardous waste in the tote is pumped into the tanks F.646 or F.647. The standard operating procedure is that removal of the amount of waste exceeding the 55-gallon limit will occur within two days. Never does the excess above 55 gallons accumulate for more than three days at the satellite accumulation area.

- *Once the 55 gallon limit is exceeded, the container must be marked with that date.*

The tote is marked with the current date when the accumulation exceeds 55 gallons.

As can be seen, all of the criteria are met for the totes to be considered satellite accumulation containers.

Under EPA and South Carolina's hazardous waste rules, satellite accumulation containers are not subject to the 40 CFR Part 264 or 265 Subpart CC air emission rules, and the equipment (e.g., pipes, pumps, valves, etc.) leading into the containers are not subject the 40 CFR Part 264 or 265 Subpart BB rules. Regarding Subpart BB, 40 CFR 264.1050(b) and 265.1050(b) and the same South Carolina rules at R. 61-79.264.1050(b) and R. 61-79.265.1050(b) address those units to which Subpart BB applies, and includes only permitted and interim status units, less-than 90-day units, and recycling units at a permitted facility. Satellite accumulation containers are not one of the 40 CFR § 264.1050(b) or 265.1050(b) units identified in the regulations to which Subpart BB applies. The totes at the Charleston plant are satellite accumulation units; they are not permitted or in interim status units, less-than 90-day units, or recycling units. Further, EPA explained in its March 17, 2004 memorandum entitled "Frequently Asked Questions About Satellite Accumulation Areas," that:

Question: *Do containers in SAAs have to comply with the air emission standards of Part 265 Subparts AA, BB and CC?*

Answer: *No. Containers in SAAs are not required to comply with the air emission*

standards of Part 265 Subparts AA, BB and CC.

See RO#14703 at 5 (3/17/2004). Thus, Subpart BB does not apply to the equipment leading into the satellite accumulation totes from the process areas.

5. *For Butyl Chloride and Ethylene dichloride, indicate the purity range of the fraction marketed as product and the fraction declared a waste.*

Response: The purity range for ethylene dichloride (EDC) generated by the Charleston plant is identified in the table below, and it is either sold or wasted at this purity level. As such, the purity does not determine whether EDC is sold to third parties as raw materials or sent to permitted treatment storage and disposal facilities (TSDF) as waste. Rather, market conditions dictate sale or disposal of EDC.

Ethylene Dichloride (EDC)	
Ethylene Dichloride	~98%
Ethylene Oxide	~1%
Chloroethanol	~1%

Butyl Chloride is generated as a by-product by the Charleston plant at the purity range identified in the table below.

Butyl Chloride	
Butyl Chloride	~90%
Butanol	~10%
Butyl Ether	~3%
Residual Products	~1%

This by-product is then sent off-site for reclamation by a third-party, which increases the Butyl Chloride purity level to about 99%. At this 99% level, the reclaimed by-product is sold as a product. There were a few months in late 2016 and early 2017 when the crude Butyl Chloride was not reclaimed and instead had to be disposed of. Sales of the 99% pure Butyl Chloride resumed in April 2017 and have continued since then. See Table below.

6. *For Butyl Chloride and EDC, describe the analysis used to determine when each is declared to be a waste.*

Response: Both the EDC and the reclaimed Butyl Chloride are considered to be saleable materials. As you can see in the tables responsive to Question No. 5, the vast majority of Butyl Chloride and EDC were sold to third parties in 2017 for use as raw materials. However, at times the market demand for these materials decreases and this lost or reduced demand plus limitations on storage capacity can lead to a determination by the plant that for a limited period of time the unsold Butyl Chloride or EDC should be disposed of as a waste.

7. *Uses for Butyl Chloride and EDC as product.*

Response: Butyl Chloride is commonly used in the production of lithium battery components. EDC is commonly used in the production of PVC products, such as pipe, but it also can be used in algacide materials. For additional uses of both materials see Kirk & Othmer Encyclopedia of Chemical Technology.

8. *Disposal Options for Butyl Chloride and EDC.*

Response: When the plant disposes of Butyl Chloride and EDC, the materials are sent to RCRA permitted fuel blending and/or incineration facilities.

9. *The percentage, on a monthly basis, of the Butyl Chloride and EDC that is declared a waste*

Response: The amounts and percentages of Butyl Chloride and EDC product versus waste that was shipped off site in 2017 are listed in the tables below.

Butyl Chloride Shipped Off Site 2017						EDC Shipped Off Site 2017					
	Pounds		Percent		Total		Pounds		Percent		Total
	Recycled	Waste	Recyc	Waste			Product	Waste	Product	Waste	
January	0	43,060	0%	100%	43,060		801,947	0	100%	0%	801,947
February	0	85,560	0%	100%	85,560		0	0	0%	0%	0
March	0	0	0%	0%	0		515,239	0	100%	0%	515,239
April	256,320	0	100%	0%	256,320		695,288	0	100%	0%	695,288
May	87,060	0	100%	0%	87,060		720,159	0	100%	0%	720,159
June	0	0	0%	0%	0		1,209,484		100%	0%	1,209,484
July	66,440	0	100%	0%	66,440		720,450	171,560	81%	19%	892,010
August	0	0	0%	0%	0		720,572	126,500	85%	15%	847,072
September	84,740	0	100%	0%	84,740		480,187	132,340	78%	22%	612,527
October	84,670	0	100%	0%	84,670		767,032	262,880	74%	26%	1,029,912
November	86,140	0	100%	0%	86,140		548,003	305,660	64%	36%	853,663
December	0	0	0%	0%	0		163,179	129,200	56%	44%	292,379
Totals	665,370	128,620	84%	16%	793,990		7,341,540	1,128,140	87%	13%	8,469,680

* * * * *

The responses above along with the attached documents address the questions raised in your e-mail of December 12, 2017. Please contact me if you have any other questions.

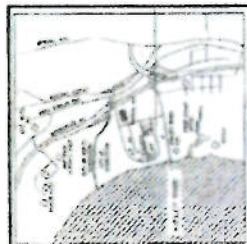
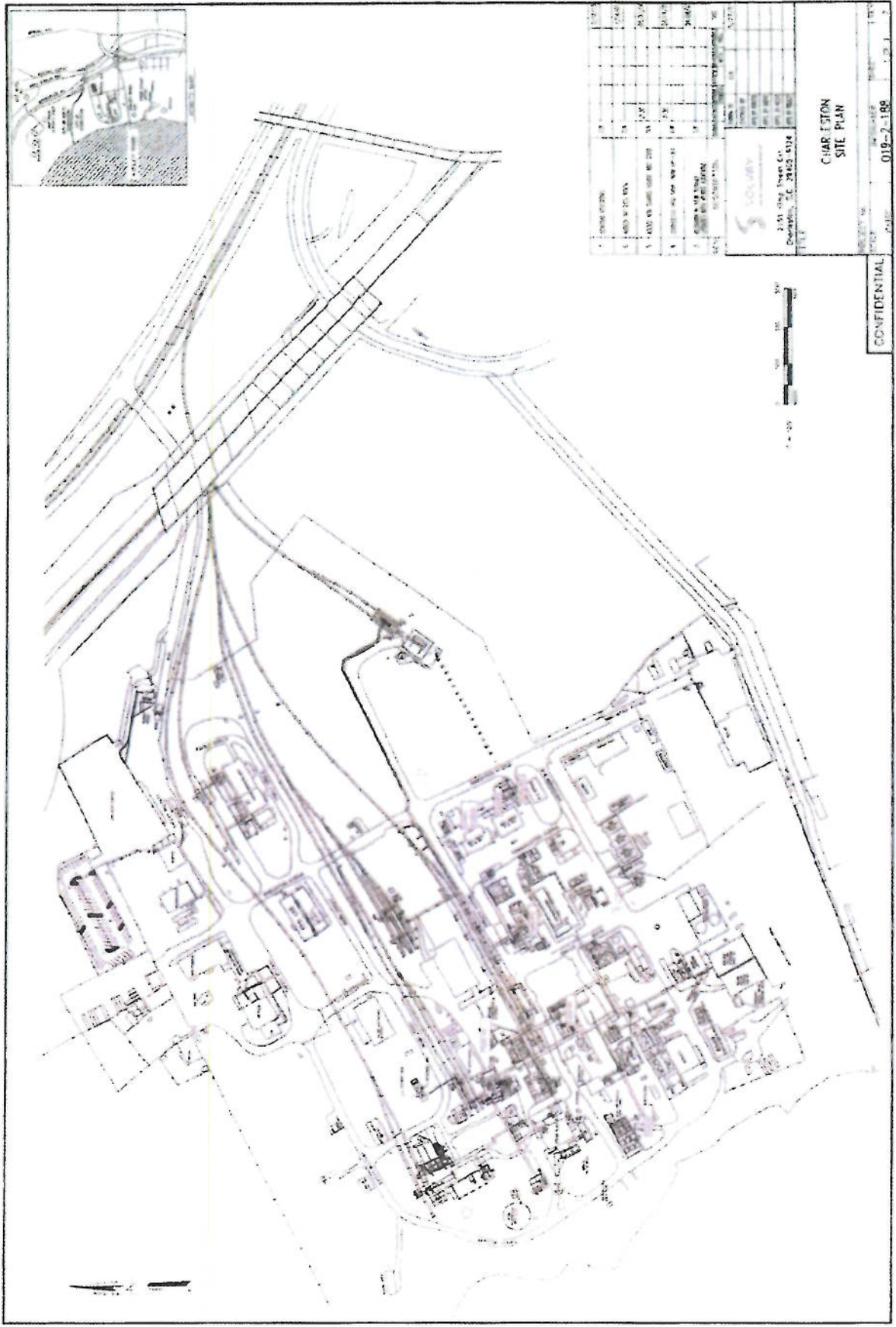
Sincerely,



Larry Kowal, CSP, CHMM
 HSSE Manager

Attachments:

- JP Morgan LOC
- US Bank Standby Trust Agreement
- Third Party Liability Coverage Certificate
- Closure & Corrective Action Plans & Cost Estimates
- Diagram of Tote Locations



1. 10000 07000	10	10000	10000
2. 10000 07000	10	10000	10000
3. 10000 07000	10	10000	10000
4. 10000 07000	10	10000	10000
5. 10000 07000	10	10000	10000
6. 10000 07000	10	10000	10000
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9. 10000 07000	10	10000	10000
10. 10000 07000	10	10000	10000

CHARLTON
SITE PLAN

019-2-186

CONFIDENTIAL

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